



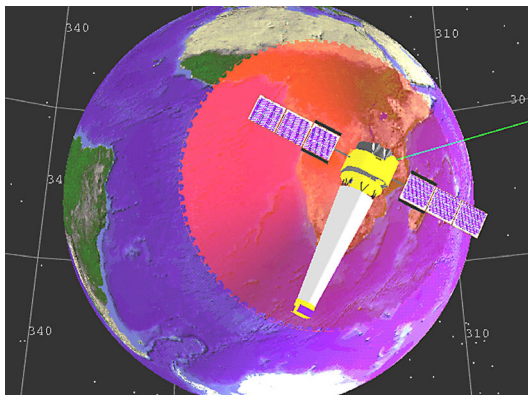
# Army-NASA Visual Innovations Laboratory

## Purpose:

The Army-NASA Virtual Innovations Laboratory (ANVIL) applies virtual reality (VR) software and peripherals for space hardware systems analysis, modeling and simulation, and for developing training applications.

In addition to serving as a research and development facility, ANVIL has entered the VR applications arena by using VR in design visualization and analysis. VR provides an impressive human interface to complex situations by adding a dimension to the perceptual tools of the analyst. By allowing evaluators to interact with a design concept and with each other in novel ways, VR provides a unique capability to visualize design features.

There are three systems engineering support areas of specialization in the lab: human modeling, systems analysis, and systems modeling and simulation. A variety of projects are underway, including dynamic work envelope analysis, virtual environments user interface standards development, haptic interface design development, kinematics analysis, radio frequency system level communication coverage and analysis, and electrical power analysis and energy management reports.



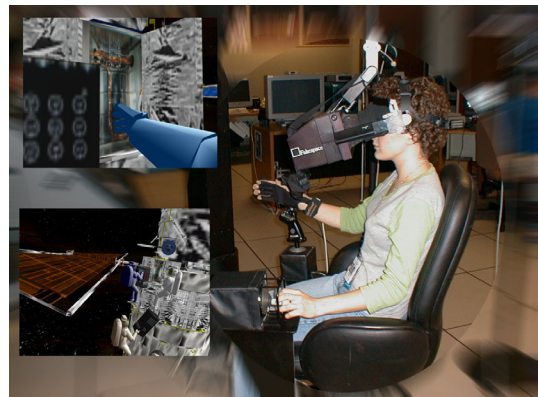
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Using the advanced engineering design and analysis tools and methods available in ANVIL, engineers can tease out and integrate design requirements information, formulate scenarios for operations concepts, integrate knowledge, procedures, and data to drive simulations and produce analyses of mission concepts and improved resource and service utilization, and evaluate human to hardware interfaces.



ANVIL collaborates with academic, commercial, and intergovernmental organizations to encourage continued innovation in VR research, development, and applications.





# Electromagnetic Interference Test Facility

## Purpose:

To provide electromagnetic interference (EMI) testing services.

The MSFC Electromagnetic Interference (EMI) Test Facility (METF) is capable of providing both developmental and qualification EMI testing for the Space Shuttle, International Space Station (ISS), payloads and military avionic applications. The equipment and procedures are in place to test to the following specifications:

The METF currently provides the following electrical power levels:

- 28 V dc – 50 Amps
- 120 V dc – 50 Amps

Other power sources may be provided if arrangements are made in advance.

### Specification

MSFC-SPEC-521B

### Title

EMC Requirements on Payload Equipment and Subsystems

SL-E-0002

Space Shuttle EMI Interference Characteristics, Requirements for Equipment

SSP 30237

Space Station Electromagnetic Emission and Susceptibility Requirements

SSP 30238

Space Station Electromagnetic Techniques

MIL-STD-461 (partial)

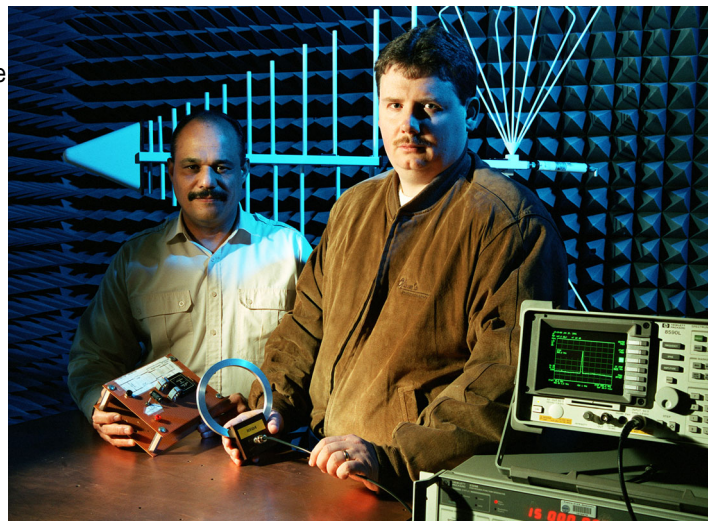
Requirements for the Control of EMI Characteristics of Subsystems and Equipment

The METF is located in Building 4708. The facility is complete with a support console, customer working area, support equipment area and two semi-anechoic, shielded chambers with the following dimensions:

- 28' L x 24' W x 20' H
- 28' L x 20' W x 12' H

The METF has HP8566B spectrum analyzers (20 Hz- 22 GHz) and Rohde & Schwarz ESI 26 EMI receivers (20 Hz – 20 GHz) for frequency domain emission measurements.

The METF personnel are available to answer questions, provide feedback and help with your EMI testing needs.



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# Environmental Data Analysis Center Facility

## Purpose:

**To provide an interactive analysis center for projects involving direct interaction with on-line and operational satellite data streams and field observations.**

The Environments Data Analysis Center (EDAC) provides conference, workstation, communications, and data server space to support the research and acquisition, analysis, archiving, and dissemination of space and terrestrial environment data. The facility supports the establishment/definition of environment parameters, development and maintenance of environment models and databases, and spacecraft and payloads performance assessments in various environments including on-orbit anomaly investigations. During special events the center is used to provide analysis results to satellite operators and launch vehicle operators so that they can assess and mitigate any impacts on their assets. Specific environment research enabled by this facility includes: thermosphere, ionosphere, magnetosphere analysis and definition; ionizing radiation definition; solar activity; plasma effects; meteoroids; orbital debris; external contamination analysis. For example, the EDAC serves as the Leonids Environmental Operations Center, a real-time data analysis hub for a worldwide network of NASA and other agencies' observers during

the Leonids Meteor events of 1999, 2000, 2001, and 2002. It is also a resource used for a number of other research and data analysis activities.

The EDAC will also house the Mission Science Team for the ProSEDS tether mission in mid 2002.

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